



City of Tucson Information Technology Plan

November, 2006

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INTRODUCTION

This Information Technology Plan, the first in over a decade, is more operational than strategic. There are multiple areas of an operational nature that need attention prior to expanding our focus beyond the near future. This plan is also intended to begin to orchestrate the City's approach to the use of information technology. A collective and shared approach will better take advantage of the City's resources and provide a path for continued cooperation.

The Plan encompasses all information technology throughout the City with major emphasis on central IT. The use of technology by all departments needs to be considered to uncover potential synergies and minimize duplication. Projects that involve more than one department are included, whether managed by central IT or a departmental IT.

Most of the underlying approaches set forth in this Plan will hold for several years but will need to be refined as strategies evolve over time. Specific projects in the Plan are within a two-year timeframe. Project priorities will be regularly reviewed against criteria noted.

The key emphasis in the short term is to strengthen the foundations of technology service delivery to create a solid base for future endeavors, and to achieve substantial increases in efficiency in providing services – both internal to the City and external to the citizens.

The Plan was created through the combined contributions of all City of Tucson IT managers. It does not cover everything, including typical components of many plans. This was a conscious choice. The Plan does provide the priority emphasis for information technology in the City over the next two years and will require recalibrating regularly as conditions change.

The departmental and central IT managers have jointly developed a mission that applies to all. By partnering with others, lead in the effective use of technology for accessible information and responsive government services.

PRINCIPLES

Underlying principles are essential to guide the City's approach to technology. As used in this Plan, a principle gives explicit direction and prompts action by its inherent meaning. Used in this context, a principle is a statement that applies to, and is appropriate for, today's circumstances and environment. If the circumstances or environment were to change, it's possible that an argument could be made to also change the principle to accommodate the evolving needs of a new scenario. The following are the principles of the City's Technology Plan:

• The hierarchy of City technology priorities is (1) serving the public, (2) increasing financial benefit, (3) facilitating interdepartmental productivity, and (4) enhancing single departmental efficiency.



Benefits: This hierarchy provides clear criteria for project prioritization and will ensure that projects move the City's objectives forward.

Implications: Project initiation and assignment of IT resources will be aligned with these priorities. This could have an impact on individual department activities. It will be essential that independent efforts that impair overall city efforts and technology standards not be initiated.

• All technology (hardware, software, communications and databases) will comply with City standards and will be shared across departments and functions as appropriate. The number and types of technology should be minimized to optimize costs and support.

Benefits: Standardized technology offers efficiencies in purchasing consolidation and maintenance support, yields economies of scale, facilitates user familiarity and fluency, and assures that all agencies within the City are up to standard levels. Sharing across departments can lead to fewer stand-alone resources and provide backup and redundancy.

Implications: Individual departments will need to conform to the standards and not make technology decisions on their own.

• Information (data) is a City asset. Most City data must be sharable. Therefore, responsibility for data monitoring should rest with a single department so that data is clearly defined, reliably sourced, appropriately accessed, and has internal integrity. Data is to be made available to the public as appropriate.

Benefits: The City benefits by not duplicating collection and management of data. By assign ing one department to be the official monitor of the data and to be responsible for the accuracy and integrity of data, the City can be assured of appropriate management of the data. By appropriately sharing data, City departments gain access to the official source of data and can depend on its availability and accuracy.

Implications: Designation of one department as the official monitor of data could add responsibilities to that department, and there would need to be Citywide discussions as to what data is to be shared and with what other departments.

• Where possible buy pre-packaged "off-the-shelf" software applications. Minimize customization in order to reduce costs.

Benefits: The industry trend is to buy, borrow, or build application software in that order. Most applications are complicated, integrated with multiple functions, and need technological refresh every few years. Therefore, it is more effective for the City to "buy" applications. Also, it is important to minimize the customization of the product as that adds to the complexity, and therefore cost, of future upgrades.

Implications: Compromises in the balance of functionality, cost, and supportability may be necessary in selecting software products. Departments may need to change certain business processes in order to align with the new software.

• Technology functions neither unique nor critical to the City's mission or direct delivery of service should be considered for a managed services/hosted solution.

Benefits: A managed services approach to technology functions allows for the redirection of internal resources, in particular staffing, to other activities. Such services can be an application function such as learning management or payroll, or an infrastructure service such as management of a wireless network. Consideration of managed services will be based on ability of an outside resource to provide the appropriate level of service, and the uniqueness and criticality of the function to the City's mission.

Implications: Reassignment of resources could be an outcome of applying externally man aged services to a function.

• There should be a single point of entry into the electronic services for customers so they can deal with the City simply and predictably, accessing the information and processes that they need.

Benefits: Customer interaction with the City in all modes should be easy. This applies to the web site and e-government interactions in particular. The web site design should be created from the customer's point of view, not the internal City departments' views.

Implications: Consistency and customer focus on the web site will lead to changes in depart mental sites and reorganization of the web site organization and structure.

• The City's network is a critical resource and ownership and control of the network should remain with the City.

Benefits: All aspects of the City's internal and external services depend on the network. It can be the launching point for telecommunications services to the community. The City can deter mine uses of the network and rate of expansion if the control remains with the City organization. This does not prohibit sharing network capability with other governmental or nonprofit organizations.

Implications: As more government services are regionalized there could be increasing needs for combining services. A regional network would thus be an interfaced rather than an integrated network.

• If there is an enterprise application for a particular function, all departments should use that application unless it can be shown that the enterprise application cannot meet their critical needs.

Benefits: Consolidation of applications brings benefits to the City in reduced vendor costs, both initial and on-going; increased application knowledge in user and IT staff which allows for a broader base of support and greater usage of the features of the application; and reduced requirement for interfaces to flow data from one system to another.

Implications: The procurement process might be longer in order to ensure that all parties' needs are considered. An enterprise application will require departments to evaluate and stream line their business processes. There might be circumstances when the collective decision is not the most optimal for an individual department, but is the best choice for the greater value to the City. Cost sharing arrangements must be negotiated.

KEY AREAS OF FOCUS

This Plan focuses on five areas which comprise the City's IT efforts:

Business Services – Business Services encompass those activities that support the internal business activities of the City. This key area covers applications used by multiple departments whether supported by central IT or departmental IT.



Shared Data – Significant amounts of data are of use to multiple departments, and effective sharing of this data and ease of accessibility optimizes business processes. Appropriate design of the data infrastructure optimizes the technical support.

Infrastructure – Infrastructure pertains to the underlying technology, processes, and standards in use by the central IT and departmental IT organizations.

Management – Management includes governance, organizational approaches, historical record-keeping and documentation, as well as policies, procedures, and standards.

Services to Constituents – The IT Department's mission speaks to "responsive government services." We must be responsive to the constituents through provision of user-friendly and ADA compliant electronic access to information and services.

Within each of the five areas of focus, there are key projects, and each requires a different approach in order to achieve success. A more indepth explanation of each of these focus areas follows. Most, but not necessarily all, of the proposed projects are listed in each area. The approaches are techniques and tools that IT must adapt in order to successfully complete the projects.

Business Services

Objectives	Ensure effective support to business processes Enhance support of multi-department applications
Projects	Payroll & HR System Advantage Upgrade Business License Management System Document Management Synergen expansion Property Research Online (PRO) Permits Plus expansion Public Safety Communications – PCWIN and ER-Link
Approaches	Emphasis on ease of use of City services, interactions Business application and project management expertise within IT, Resources assigned for coordination of major cross-department applications

Shared Data

Shurea Data	
Objectives	Share data appropriately and effectively across the City Use common GIS data across departments
Projects	GIS Coordination Incremental transition to geo-databases Expansion and redesign of data warehouse
Approaches	Develop information architecture and information policies Develop standards for interoperability Focus on expanded use of data and tools Standardized sets of data, minimizing duplication

Infrastructure

Objectives	Ensure technology infrastructure is adequate to City's needs and growth Upgrade infrastructure to support public safety Enhance City network Ensure public has access to internet services
Projects	Voice over Internet Protocol (VoIP) phone system ERLink and regional extension Pima County Wireless Integrated Network (PCWIN) TUSD Connection to City Network Rearchitecting of City Network WiFi and Fiber infrastructure Replacement of Mainframe Computer Assessment of current state of technology deployment Development of refresh/replacement program
Approaches	Develop architecture to be followed for hardware, software and networks (wired, wireless, radio) Document network map, standards Define standard products and services provided – e.g., email/calendaring, document management, desktop support, desktop configuration, phone/PDA configurations and support Document application maps and interfaces

Management

Management	
Objectives	Regionalize services as appropriate Assure superb delivery of ongoing service Develop City wide view of IT Ensure costs are managed Develop effective IT governance Develop emergency preparedness measures Provide effective project management to all IT projects
Projects	Regionalization – Channel 12, network IGA Assessment of all contracts, maintenance agreements Disaster recovery/business continuity
Approaches	Assure superb delivery of on-going services Develop citywide view of IT (still decentralized as appropriate); build temporary teams to support big projects. Bring one city view to: All networks (wired, wireless, general purpose, specific purpose (e.g., public safety, ERlink), link to County) GIS, assure responsibly covered Web site Enterprise data Governance Process for making technology decisions Review of priorities Inclusion of departmental IT Project management – standards and procedures, policies, training, discipline

E- Services

L SCI VICES	
Objectives	Increase public access to government services and communication with citizens Increase ease of use of City e-services Provide mechanisms for community dialog
Projects	311 Call Center Web Site Organization
Approaches	Quantity and ease of use of City services, interactions Increase public access to government services and communication with citizens Internet connectivity to public

CONCLUSION

This Technology Plan has delineated guiding principles for the City's approach to prioritizing projects, acquiring hardware and software, sharing data, and providing electronic services to constituents. All of the principles reflect adherence to the Mission Statement that was jointly developed by departmental IT managers, which emphasizes "effective use of technology" and "responsive government services." In order for the Plan to succeed, implementation must be a collaborative effort representing organizational consensus where individual departments may need to place their individual needs and wants subordinate to the good of the City organization as a whole. Through teamwork and communication, the City can meet its technology needs and see real results -- a thriving community.

Following are the Appendices included with this Plan: These appendices contain the details of this plan. Those who most directly contributed to this Plan are listed in Appendix A. The Project list and timetables are in Appendix B. The Infrastructure Models, which will guide our technology purchases, are in Appendix C. Some department IT groups have a department plan and those are included here for completeness in Appendix D.

Appendix A - Participants

Appendix B - Objectives/Initiatives/Actions by Key Focus Areas

Appendix C - Infrastructure Models

Appendix D - Departmental Plans

APPENDIX A - PARTICIPANTS

Gage Andrews Information Technology

Carl Drescher Information Technology

Michael Hicks Transportation Department

Yvonne Morken Tucson Fire Department

Jessie Sanders Development Services

Maribel Silva Parks and Recreation

Ann Strine Information Technology

Becky Williams City Courts

James Wysocki Tucson Police Department



APPENDIX B - OBJECTIVES / INITIATIVES / ACTIONS BY KEY FOCUS AREA

Notes: • The dates are working dates and are subject to business decisions. Those dates fully under IT control are more definite.

- Dates are reflected in quarters and fiscal year, i.e. Q1/FY07 is July through September, 2006
- Citywide IT refers to the collective IT organization of central IT, and departmental IT organizations in TPD, TFD, DSD, TDOT, Parks & Recreation, and Courts.
 - Core GIS refers to central, TPD, TFD, DSD, TDOT GIS components of IT.

Business Services

Objective:	Ensure effective support to business processes	Group C Responsible	Completion Target
Initiative:	Replace current payroll and HR system		
Action: Action: Action:	Release payroll RFP with multiple scenarios which will both internally managed solution and externally managed solution Upon selection of new payroll system, design project Carry out payroll project and convert to new system Note: If externally managed solution is NOT chosen, this project will have a much later completion date and all other projects within this objective will also be delayed.	HR/IT/Finance Q HR/IT/Finance Q	August 2006 - done Q3/FY07 Q1/FY08
Initiative:	Upgrade Advantage Financial System to Version 3.6		
Action: Action: Action:	Complete all maintenance projects on the financial system Design Advantage upgrade project details Implement Advantage upgrade	IT IT/Finance Q IT/Finance Q	Q3/FY07 Q3/FY07 Q1/FY08
Initiative:	Replace current Business License Management System		
Action: Action: Action:	Contribute to Finance RFP for new BLMS system Design BLMS project details upon selection Implement new BLMS	IT IT G Finance	August 2006 - done Q3/FY07 Q3/FY08
Initiative:	Implement Document Management System for the City		
Action: Action: Action:	Select Document Management product through RFP process Design Document Management projects for DSD and Agenda Management so that they complement each other Implement Document Management System for Agenda	T & DSD IT Q	August, 2006 - done Q3/FY07 Q2/FY07
	Management		

Q3/FY07 Q4/FY07 Q1/FY08	Q1/FY07	Q3/FY07 Q3/FY07 Q1/FY08 Q3/FY07	N/A Q1/FY08		Q3/FY07 Q3/FY07 Q3/FY07	Q3/FY07 Q4/FY07	Q4/FY07 Q4/FY07	Q4/FY07 Q1/FY08
DSD IT IT & DSD IT IT	E	T T T/TDOT T	╘		DSD IT & IT DSD IT & IT DSD IT & IT	DSD IT & IT	DSD IT	DSD IT
Implement Document Management System for DSD Compare Document Management system implementations and document learning for expansion across City Develop strategy for expansion of Document Management across City	Expand use of Synergen across City Design project for Synergen expansion to Facilities	Management Convert Facilities Management to Synergen Design Synergen project for Parks & Rec for inventory Convert Parks & Rec to Synergen Evaluate use of Synergen for TDOT maintenance	management If Synergen appropriate, design project and convert TDOT to Synergen Review Procurement capabilities of Synergen	Property Research Online (PRO) – Internet service purposed to provide important and relevant information on any property in Pima County	Create "Address Master" on shared regional server Create geo-database hosting "as is" GIS resources Create database providing links to relevant information and sites for all properties.	Develop website providing text-based property input on property for retrieval and display of property information. Integrate initial documents for Document Management system into PRO results display		and display of property information Finalize structure of all PRO-related documents for Document Management storage and retrieval Complete population of PRO documents for Rio Nuevo
Action: Action: Action:	Initiative: Action:	Action: Action: Action: Action:	Action: Action:	Initiative:	Action: Action: Action:	Action: Action:	Action: Action:	Action: Action:

Initiative:	Expand use of Permits Plus – Wireless Field Computing		
Action:	Award Wireless Field Computing RFP	DSD/FIRE/DNR	Q2/FY07
Action:	Install Wireless Field Computing Server/Software	DSD IT & IT	Q2/FY07
Action:	Fire Wireless Field Computing Go Live	FIRE	TBD
Action:	DNR Wireless Field Computing Go Live	DNR	TBD
Action:	DSD Wireless Field Computing Go Live	DSD	TBD
Objective	Enhance support of multi-department applications	Group	Completion Target
		Responsible	
Initiative:	Develop application coordination approaches for Synergen		
Action:	Establish application governance board for Synergen	Operations/	July 2006 - done
		Water/Fire IT	
Action:	Assign two IT staff to coordinate Synergen use across the		July 2006 - done
	City		
Action:	Develop role and duties for application coordinators	Synergen Gov	September 2006 -
		Board	done
Action:	Evaluate effectiveness and areas for improvement in	Synergen Gov	Q1/FY08
	Synergen coordination	Board	
Action:	Decision to continue Synergen coordinators, conditions	Synergen Gov	Q1/FY08
	required	Board	
Initiative:	Expansion of coordination approach to Document		
	Management		
Action:	Evaluate need for Document Management governance board		Q2/FY06 - done
	and application coordinators		
Action:	Determine Document Management application coordination	IT/DSD	Q3/FY07
	staffing resources – if coordinator(s) to be assigned		
Action:	Develop role and duties for Document Management	⊥	Q3/FY07
	coordinator(s)		

Shared Data

Completion Target	
Group	Responsible
Share data appropriately and effectively across the City	
Objective:	

Initiative:	Develop an information architecture		
Action:	Define what the framework for an information architecture would be	Citywide IT	Q3/FY07
Action: Action:	Research information architecture approaches Draft an information architecture and review with interested parties	Citywide IT Citywide IT	78D 78D
Action:	Develop information architecture standards	Citywide IT	TBD
Initiative:	Develop appropriate information "policies"		
Action:	Research information policy areas and statements from other municipalities and organizations	Citywide IT	Q3/FY07
Action:	Determine if there should be an information administrative directive, procedures, standards	Citywide IT	Q3/FY07
Action:	Develop and gain approval to appropriate information "policies"	Citywide IT	Q4/FY07
Initiative:	Develop City data warehouse		
Action:	Rework current data warehouse structure and entries	<u></u>	Q2/FY08
Action:	Document data model		Q3/FY08
Action:	Identify data that needs to be shared and include it in the	П	Ongoing
	warehouse		
Initiative:	Coordinate with Document Management project		
Action:	Identify legal and other mandated requirements for	IT with help of City	Q1/FY07
	document management	Clerk	
Action:	Develop classification methodology to permit cross functional sharing of documents	±	Q4/FY07
Action:	Develop training and rollout package to enable progressive deployment of document management	L	Q4/FY07
Action:	Deploy document management capabilities across City	L	Q2/FY08
Objective	Use common GIS data across departments	Group Responsible	Completion Target
Initiative:	Develop model of City's GIS data	•	
Action:	Identify all the generators of GIS data, the particular data	GIS Core	Q3/FY07
Action:	they generate and use Develop model of GIS data/lavers, identify other City needs	GIS Core	Q4/FY07
	Develop model of Gro data/layers, identify other City modes	פוס כסים	20-145

	Q1/FY08 Q1/FY08 TBD		Q3/FY07 Q1/FY08 Q2/FY08		Completion Target		Q1/FY08	Q1/FY08	Q1/FY08	Q3/FY07 Q1/FY08		Q1/FY08 Q1/FY08
	IT/TPD/TFD GIS Core GIS Core		GIS Core IT GIS Core		Group Responsible		Citywide IT	Citywide IT	Citywide IT	Citywide IT Citywide IT		Citywide IT Citywide IT
Develop coordinated approach to providing and sharing GIS data across appropriate City departments	Identify public safety needs for GIS data and establish projects to provide Establish responsibilities of each provider of GIS data Develop geo data bases for multi-department and regional use	Engage the GIS Cooperative in designing most effective strategies for their contributions	Draft regional GIS strategy for GIS use and coordination Determine if IGAs will be required to support regional GIS Assign GIS Coop responsibilities		Ensure technology infrastructure is adequate to City's needs and growth	Assess current state of technology deployment and use within the City	Inventory all servers, major network components, desktop computers	Develop schedule of replacement and associated budget requirements for servers, network components, desktop computers	Develop schedule of maintenance costs for hardware – staffing assigned, vendor charges	Inventory all applications, including purpose, use, age, Determine maintenance costs, recommendation on replacement and probable costs for applications	Develop architecture for all areas of infrastructure ensuring that they are compatible)	Develop architecture for servers Develop architecture for network (wired, wireless, radio)
Initiative:	Action: Action: Action:	Initiative:	Action: Action: Action:	Infrastructure	Objective:	Initiative:	Action:	Action:	Action:	Action: Action:	Initiative:	Action: Action:

80	- L	Completion Target	& &		7	7	Q2/FY08 Q2/10 Completion Target
Q1/FY08	TBD Q4/FY07 Q3/FY07 TBD Q3/FY07	Сотріє	Q2/FY08 Q3/FY08 TBD	Q2/FY07 TBD TBD	Q2/FY07	Q2/FY07	Q2/FY08 Q2/10 Complet
Citywide IT	Citywide IT Citywide IT Citywide IT Citywide IT	Group Responsible	City / County City / County City / County	IT / TFD/ DOT	IT / TFD	TTDOT TTDOT	IT/TDOT IT/TDOT Group Responsible
Develop architecture for applications	Standardize on set of products Document and publish standards for handheld devices Document and publish standards for networks Document and publish standards for applications Document and publish support services for desktop environment, handheld devices Document and publish standards for infrastructure applications, e.g. email, calendaring, document management	Upgrade infrastructure to support public safety	PCWIN Needs analysis / business model / RFP creation RFP evaluation and system technical engineering System Implementation	ERLink Phase I - Speedway / Campbell corridor Phase II - Wireless coverage for the entire City New System Users - analysis of needs and available bandwidth by governance board	IP Mobile Net Complete testing of 700 Mhz system of IP Mobile Net Expand use of Permits Plus - Wireless Field Computing	Deploy Regional Transportation Data Network - RTDN Develop master plan for the communications infrastructure	for RTDN Develop implementation plan for RTDN Deployment/construction/implementation of RTDN Enhance City network
Action:	Initiative: Action: Action: Action: Action: Action:	Objective:	Initiative: Action: Action: Action:	Initiative: Action: Action: Action:	Initiative: Action: Initiative:	Initiative: Action:	Action: Action: Objective

Group Responsible IT	Initiative: Action: Action: Action:	Upgrade telephone service Install VoIP service to all City facilities Determine effectiveness of additional features with VoIP and implement Propose best practices in use of telephones and interface with public Position City network to expand uses	= = =	Q2/FY08 Q3/FY08 Q2/FY08
eeds assessment eeds assessment ssue RFP for actual WiFi		Re-architect network to allow for additional users and uses Implement new network architecture Extend connection to City network to TUSD	느느느	780 780 780
eeds assessment sssment issue RFP for actual WiFi Ition of WiFi network It as appropriate s programming to support additional unty on use of Channel 12 and provide It show content to take a regional focus r valley jurisdictions to determine ihannel 12 tels for regional Channel 12 IT		Ensure public has access to internet services	Group Responsible	Completion Target
eeds assessment sssment issue RFP for actual WiFi		Provide public WiFi		
Group Responsible IT IT		Issue RFP for WiFi needs assessment Based on needs assessment issue RFP for actual WiFi network construction	ヒヒ	Q1/FY07 - done Q4/FY07
Group Responsible IT IT		Oversee implementation of WiFi network	E	TBD
Group Responsible IT IT IT				
<u> </u>		Regionalize services as appropriate	Group Responsible	Completion Target
<u> </u>		Expand Channel 12's programming to support additional jurisdictions		
느느 느		Develop IGA with County on use of Channel 12 and provide programming	╘	Q3/FY07
: =		Expand Channel 12 show content to take a regional focus Coordinate with other valley jurisdictions to determine	<u> </u>	Q1/FY08 Q1/FY09
the section of the se		interest in regional Channel 12 Develop funding models for regional Channel 12	: =	Q3/FY07
Expand herwork usage and interconnection with country		Expand network usage and interconnection with County		

Q2/FY08 TBD			Completion Target	Q3/FY07	Q3/FY07		Q4/FY07	Q4/FY07	Q2/FY08		Q4/FY07	Completion Target		ТВD
<u></u> ⊨ ⊨	T/TDOT		Group Responsible	<u></u>	Ŀ		⊑	E	Ŀ		Ŀ	Group Responsible		Citywide IT
Design network approach with County Work with County on additional infrastructure projects	PCWIN Projects under Infrastructure section	PRO- Property Research Online Projects under Business Services section	Assure superb delivery of on-going service	Minimize unplanned maintenance on all production systems Document application run time processes for all major	systems Track reasons for unplanned production downtime and address root causes	Develop performance metrics for all aspects of production delivery, measure to them	Establish operations and network performance standards	Establish nightly production performance standards and	Establish change control process, note adherence to process and results from process	Establish service delivery as high value	Restructure accountability to end customer or constituent on service delivery	Develop city wide view of IT	Develop integrated view of all networks (wired, wireless, radio, general purpose, specific purpose (e.g. public safety, ERlink), link to County)	Map all networks and define how they interconnect, use of each, probable evolution of each
Action: Action:	Initiative: Action:	Initiative: Action:	Objective:	Initiative: Action:	Action:	Initiative:	Action:	Action:	Action:	Initiative:	Action:	Objective	Initiative:	Action:

Action:	Define maintenance responsibilities for each aspect of networks	Citywide IT	TBD
	Develop City wide GIS view		
Action: Action:	Create central GIS standards and responsibilities Develop coordinated GIS repository	GIS Core GIS Core	Q4/FY07 Q2/FY08
Initiative:	Develop integrated web site		
Action:	Convert all web pages to content management system	<u></u>	Q3/FY08
Action:	Update design of web site (every six months)	<u>_</u>	Q4/FY07
Action:	Evaluate structure and organization of web site, develop		Q1/FY08
	recommendations for change		
Action:	Implement recommended changes for web site	╘	Q3/FY08
Initiative:	Design City intranet web site to be key source of information		
	and utility for employees		
Action:	Convert all intranet web pages to content management	±	Q3/FY08
	system		
Action:	Update design and organization of web site		Q4/FY07
Action:	Establish group to coordinate web content	<u> </u>	Q2/FY08
Objective	Ensure costs are managed	Group Responsible	Completion Target
Initiative:	Assess maintenance costs		
Action:	Review all application maintenance costs and renegotiate		Q1/FY08
	contracts if appropriate		
Action:	Document all contracts, terms and renewal dates, evaluate	±	Q1/FY08
	for adjustments		
Action:	Develop and implement schedule as to duration of	<u></u>	Q2/FY08
	maintenance coverage on equipment		
Initiative:	Assess overall IT costs for City		
Action:	Collect department IT costs for staffing and operating	IT with help of HR &	Q4/FY07
	expenses	Budget	
Action:	Evaluate opportunities for reduced expenses through shared	Citywide IT	Q2/FY08
	resources, common purchases		

Action:	Work with Budget Office to code technology spending	±	Q3/FY08
Objective	Develop effective IT governance	Group Responsible	Completion Target
Initiative: Action: Action: Action:	Improve process for setting priorities across City Develop alternatives for Enterprise Resource Planning Board and Customer Advisory Board Develop project reporting to interested parties Improve project request process so that priority setting body understands project and implications	E EE	October 2006 - done Q2/FY07 Q3/FY07
Initiative: Action:	Coordinate across all IT groups in City Establish connections of IT Managers with City IT management team	Ŀ	Q2/FY08
Action:	Establish connections of IT staff within departments with appropriate group within Central IT, e.g. Customer Service, Applications Division	╘	Q2/FY08
Objective	Develop Emergency Preparedness measures	Group Responsible	Completion Target
Initiative:	Develop and be prepared to enact Emergency Support Functions assigned to IT		
Action: Action: Action: Action:	ESF # 15 Public Information Develop detailed procedures for #15 ESF # 2 Communications Develop detailed procedures for #2	IT IT Citywide IT	October 2006 - done Q3/FY07 October 2006 - done Q3/FY07
Initiative: Action:	Develop Continuity of Operations Plan (CoOP) Work with EOP project staff to establish components of	E	Q3/FY07
Action: Action: Action:	CoOP Establish and document IT processes for CoOP Work with users to ensure IT support for their CoOP Establish secondary site for public safety data center	IT IT IT, TPD/TFD IT	Q4/FY07 Q2/FY08 Q1/FY08
Objective Initiative:	Provide effective Project Management to all IT projects Develop PM abilities	<u>!</u>	
Action:	Contract for PM Training	Citywide IT	Q3/FY07

Citywide IT Q2/FY08	
Establish project management standards, templates,	approaches
Action:	

E-Services to Constituents

Objective:	Increase public access to government services and communication with citizens	Group Responsible	Completion Target
Initiative:	Rework web site for easier navigation and higher quality presentation		
Action: Action:	Develop city wide approach to web design Develop on-going improvement process for web site design, content and navigation	느느	Q1/FY08 Q3/FY07
Action:	Provide effective search capability on web site	⊏	September 2006 - done
Initiative:	Add additional e-services, improve current e-services		
Action:	Add credit card payment to City Surplus	ш	Q4/FY07
Action: Action:	Add city news and ability to subscribe for citizens Add consistent interface to e-services	IT Citywide IT	Q2/FY07 Q1/FY08
:			
Initiative:	Distribute responsibility for content update on web		
Action:	Bring all departments into CMS	L	Q1/FY08
Initiative:	Extend role of PIO		
Action:	Review PIO responsibilities and establish direction and objectives for office	╘	Q3/FY07
Action:	Develop new PIO services, such as information for email lists	⊏	Q3/FY07
Initiative:	Deploy document management system in support of internal processes and citizen access to appropriate information		
Action:	TBD	±	TBD

Objective	Increase ease of Use of City E-Services	Group Responsible	Completion Target
Initiative:	Re-orient web site to be focused on Citizen needs, not City departments		
Action: Action: Action:	Engage consultant for new web design Complete public facing redesign of web site Complete implementation of web site in new design		Q1/FY08 Q2/FY08 Q2/FY09
Initiative:	Increase number of actions that can be taken on web beyond just printing a form		
Action:	Identify all e-services on web and upgrade as many as possible	⊏	Q1/FY08
Initiative:	Provide information to citizens through various mediums		
Action: Action:	Determine approach to 211/311 call center services Ensure web site contains relevant information	CMO Citywide IT	78D 78D
Objective	Provide mechanisms for community dialog	Group Responsible	Completion Target
Initiative:	Establish multiple electronic paths for communication		
Action:	Ability to subscribe to various email subject areas from the web	Н	Q2/FY07 - done
Action:	Explore possibility of blogs as a communication path to	∟	Q4/FY07
Action:	Deploy mechanism to conduct surveys and public opinion polling online.	E	Q4/FY07

APPENDIX C - INFRASTRUCTURE MODELS

The following models are representative. They convey a current situation and over time will be refined to offer more direction for planning and integration. Actions within this plan further delineate the models.



Application Model

– a representation of the current types of applications and their current status. This is not all applications in use by the City

Network Model

- a representation of the data, voice, video network(s), including fiber, wireless and radio

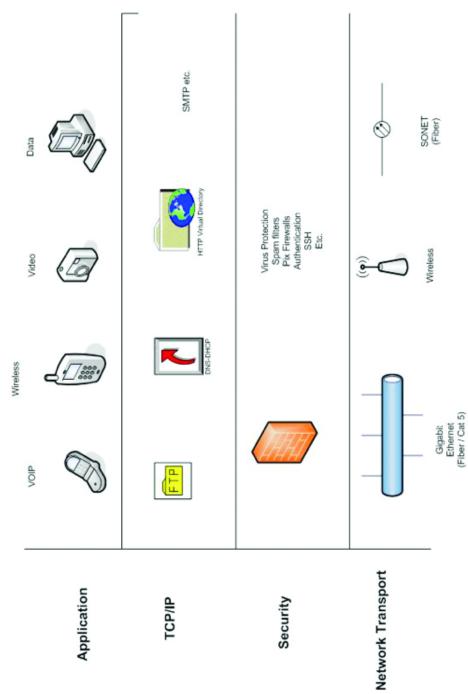
Hardware Model

– a representation of the data center including servers and mainframe computers

Application Model

		City of Tucson Information Architecture	Information A	Architecture		
Functional areas	City Administration	Growth Management	Public Safety	City Infrastructure	Community Services	Internal Support
Enterprise Apps	Financial management Decision Intranet Data and infrastructure security		Support CRM (NOVA) Project Management Personal I	Cash columns	Cash collections system Nisk Management stem Timekeeping G	Email agement ement GIS
	Learning Mamnt		Permit Ma	Permit Management		Learning
Cross Dept. apps		Licensing		Real property mammt	mamut	
	Document Management	anagement		Maintenance Management	anagement	
			Emergen	Emergency response	Registration scheduling	scheduling
	Election Management	Comprehensive Planning	Police, <u>Fire</u> records	Fleet Management	Parks/Zoo	Legal Support
	Treasury Management	Compliance Tracking	Emergency Medical Service	Computer aided drafting	Event Management	Help desk
Single Dept. apps	Revenue mamnt		Courts	Traffic signal	Golf	Channel 12
	Mayor and Council Agenda	Regional Planning	Fire Automated Field Reporting	Bus System (SunTran/VanTran)	Property Management	Prosecutor and Defender offices
	Public Information	Zoning	Computer Aided Dispatch	Regional Transportation Data Network	Graffiti Abatement	
			Enhanced Security			
Work effe	Work effort needed (keys):	Slight work	Moderate work Work	Significant		

Network Model



Hardware Model

Desktop Workstations

HP, Dell Intel Pentium based

HP, Dell Laptops and Notebooks

Panasonic Tough books

Workgroup Servers

IBM

윺

ProLiant, BladeSystem, 2-4 processors, 2GB RAM per processor, RAID 5 Arrays

P Series servers, 2-4 processors, 2GB per processor, RAID 5 Arrays

Enterprise Servers (Application will drive the requirements all system specs .i.e. RAM, processing power etc.)

Enterprise class servers

Sun

유

IBM

4 - 8 processor Systems

High end P Series 4-8 processors

IBM Multiprise Mainframes

Storage (SANS and external storage arrays)

Symmetrics, Clarion, storage subystems

EMC

유

SAN subsystems

High volume tape backup systems

нР, ІВМ

Virtual Storage subsystems

Printers

유

Workgroup Laser Printers (color and B/W)

Various Vendors Copier / printers

High Speed Color (enterprise level high volume printing) Xerox

APPENDIX D- DEPARTMENTAL PLANS

Two department plans are attached, one for TDOT and one for TPD. They are both living documents and may have changed since being included. Contact Mike Hicks for the updated TDOT technology plan and Jim Wysocki for the TPD technology plan.



City of Tucson

Department of Transportation Technology Services and Business Plan



MISSION STATEMENT:

The mission of the Transportation Technology Services section is to provide the highest quality in technology-based services, in the most cost-effective manner, to facilitate the City of Tucson and Department of Transportation's mission as it applies to management, education and community service.

I. INTRODUCTION

Each year, the Department of Transportation makes substantial financial expenditures in operating and developing Transportation Technology Services (TTS) related systems and projects. TTS encompasses computer and communications infrastructure, including hardware and software, communications (voice, data, and video) and databases, as well as the applications that run on or use that infrastructure to deliver the actual services to internal and external customers. These applications and the data they provide are assets of the City of Tucson, Department of Transportation. The TTS section's primary responsibilities are in the areas of providing information services and technology, developing and implementing recommended standards for information services and technology, developing and maintaining security policies for network systems, coordinating the acquisition, maintenance and design of the network infrastructure, provide a unified vision for information services and technology by the departments participating agencies (Sun Tran and Van Tran).

Responsibilities also include services such as Content and Document Management Services, Data Management Services, Help Desk Services, Network Design and Construction, Network Management Services, Network Security Services, Network and Systems Analysis Services, Network and System Integration Services, Technology Asset Management Services.

Transportation Technology Services has become a major component of everyday life and is continuously evolving. This has resulted in the emergence of new concepts at an explosive pace. The technology revolution includes continuous, rapid and dramatic new developments in information technology services as well as hardware and software. It is, therefore, imperative that the Department of Transportation Technology Services section provides a minimum level of information technology proficiency to all staff.

VISION:

The Transportation Technology Services section's vision is to be a key contributor to advancing the Department's strategic plans and goals.

The Transportation Technology Services section will be renowned for leadership and expertise in the field of information technology.

The Transportation Technology Services section will promote and foster partnerships and collaboration to with other departments and agency's to achieve excellence in the use of information technology.

The Transportation Technology Services section will provide and promote responsiveness, reliability, and customer service.

GOALS:

- Communications Infrastructure Develop and maintain a leading edge communications infrastructure capable of delivering "anytime, anywhere" access.
- Enabling Technologies, Systems, and Services Develop and maintain effective, efficient, secure, transparent middleware solutions and enterprise services.
- Teaching, Learning, and Research Infrastructure Create an environment where department staff can gain the IT skills necessary for success in their work environment and use IT effectively and innovatively.
- Business Process Support Infrastructure Create an advanced business environment with effective, integrated information systems and IT operations facilities that support the business processes of the department.
- Workforce Infrastructure Create a highly motivated and skilled IT workforce to provide the central and local support and services necessary for first-class IT infrastructure at all levels.
- Safeguard Information from possible disaster or assault
- Promote IT staff to continue their technical training and other education
- Build relationships with governmental agencies regarding public safely information (TransView network)
- Provide support and network design for the Arizona 511 Traveler Information System
- Maintain working relationship with Sun Tran and Van Tran



TTS'S CORE SERVICES ARE AS FOLLOWS:

1. Administrative Services

- Responsible for the network and internet connections
- Cellular Telephone support and related issues
- Unlimited user support on a variety of issues, from not being able to print to creating macros for spreadsheets
- Maintain departmental network servers, Includes upgrading, troubleshooting, and monitoring for performance
- Maintain all Department PC, monitor, printer, and copier inventory.
- Surplus unused equipment, and sometimes furniture also.

2. Applications Services

- •Provides systems development, integration, implementation, and support services for the Department's information systems
- •Applications development, implementation, and support
- •Manages department databases
- •Web Resources and Development support for web publication in the Department
- •Support in websites and website virtual hosting services (TransView.org, TDOTMAPS.TransView.org, etc.)
- •Manage a range of application servers. Amongst many other applications and portals

3. Client Services

- Manages all the interfaces between each division and its clients
- Liaison with all department divisions and sections about current and future products and services
- Make provisions of audio-visual and IT related services
- Management of the staff desktop computing environment
- Provide call centre and support services
- The preparation of print and web publications
- TTS also plays a major role in the provision of IT training services that support the Departments IT strategies
- Supports Department's telephone mobile services

4. Infrastructure Services

- Provides and manages the Department's shared IT infrastructure facilities
- Identity Services comprises a range of registration and authentication activities (security)
- Provided continual restructure of the Directory Service (eDirectory)
 - These store authentication and profile information for staff that are used in turn by a wide range of other services.
 - Messaging Services comprises Messaging (primarily email at present), for collaboration, and Scheduling (Calendar)

5. Networks Infrastructure Services

- The TTS section supports all aspects of the internal Department networks across all campuses and the internet
- Management of the Department's WEB servers
- Installation and configuration of cabling and switching hardware
- Installation of associated software for example, firewall systems
- Responsible for the administration of internet domain names.



6. Microcomputing

- Supports the operation of the Department's Novell NetWare server environment
- Supports the operation of the Department's Microsoft server environment
- Supports the operation of the Department's Unix computing resources
- Supports the operation of the Department's Microsoft Windows desktop environment for staff
- Printing and print accounting
- Manages virus protection on the Novell network and in the desktop environment

7. Production Facilities

- Supports the operation and maintenance of the IT facilities for which TTS is responsible
- Operational support, computer room site engineering, IT business continuity and IT operational processes

8. Security

- Ensure the confidentiality, integrity and availability of the Department's IT facilities
- Recommends security policies
- Procedures and best practices
- Software and network configurations
- Conducts audits and risk assessments of network and local machine vulnerabilities

9. Shared Client support

- TTS is responsible for supporting client and network resources such as the Planning Task Force
- Coordination of IT related efforts between Sun Tran, Van Tran and the City
- TTS plays an important role in ensuring business continuity for the Department by provisioning and distributing hardware between two data centres, and managing offsite network based backup facilities, including the hierarchical storage management (HSM) service.

10. Remote access

• Manage and provide appropriate remote off-campus access to the Department's on-line staff

11. Video network services (TTS and FMS)

- Provision of network capacity and infrastructure
- Services to enable effective live (synchronous) and streamed (asynchronous and TCP) audio/video/multimedia applications, in both point-to-point and multi-point distribution modes



CORE VALUES:

The Transportation Technology Services section has a set of values that will guide our long-range decisions and our day-to-day activities. We value:

- 1
- The vision and mission of the City of Tucson and the Department of Transportation
- Excellence in reputation, achievement, and service to our customers
- Honesty, integrity, and fairness

Open communication and mutual respect

- Staff knowledge and expertise
- Individuality and creativity
- Teamwork and collaboration
- Working smart and having fun
- Innovation
- · Accountability and personal responsibility

II. EXECUTIVE SUMMARY

The Transportation Technology Services section (TTS) is responsible for all Telecommunication and Network Services, which provides voice, video, and network services to the Department of Transportation. TTS is responsible for over 350 network resources such as servers, switches, workstations, and over 450 users, the regions Information Center (Transview, Geographical Information System (MapGuide), the State of Arizona's Travel Information Systems (FMS and 511). It also supports other Departments such as the Comprehensive Planning Task Force and Rio Nuevo. TTS is responsible for the design, installation, documentation, and maintenance of the fiber and copper infrastructure that allows the delivery of these communication services in all TDOT right-of-way.

TTS is committed to providing and developing new technology such as:

- Providing wireless network connectivity
- Providing the traveling public with up to the minute travel advisories
- Provide the AZ511 with current Sun Tran schedules
- Promote and embrace technological advancements that will promote staff productivity

Currently TTS network and client support employs 1 IT Manager, 1 Project Manager, 4 Systems Analyst, and 5 part time interns.







INTRODUCTION:

The Tucson Police Department (TPD) is heavily dependent upon the use of information technology (IT) to conduct its daily operations. This plan will demonstrate how this technology can best support the department's strategic directions.

In order to optimize the department's daily operations, its technology tools must be closely matched to the tasks at hand. It is important to note that the computer systems and hardware that are optimal today may not be the best fit to tomorrow's needs. Because of this rapid pace of change, a number of assumptions are necessary to estimate the department's technology support requirements. Should later experience demonstrate that one or more assumptions are proven to be wrong, this document can be modified accordingly to best meet TPD's requirements.





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INFORMATION TECHNOLOGY & POLICE SERVICES

In an age of strict budgets, a growing demand for police services, and a persistent lag between the fiscal demands of urban growth and city government's revenues, a focused IT Strategic Plan can be used to bridge much of the gap between the supply and demand for police services.



The Vision

Stated in its simplest form, TPD's information technology vision can be expressed as "Secure systems, available everywhere". All of the department's computer networks are being extended to include patrol cars and other vehicles, wherever they might be located within the city. Officers should have every computer system at their disposal, regardless of whether they are at a desk or in a vehicle. They need immediate access to the investigative systems and information tools required to do their jobs in an increasingly efficient manner. The use of IT systems supports TPD's information-driven community based policing philosophy.

Within five years, police officers should be able to send and receive securely encrypted messages using a variety of very fast data networks. These networks increasingly will be based using a mixture of wireless and wired hardware. Police services will be based on officers rapidly sharing their police reports, field interviews, investigative results, mug shots, aerial photos, fingerprints, and other related information with one another. Police information will not be limited to that which is in TPD's own databases. Since criminals do not observe jurisdictional boundaries, much of the department's real-time information will come from the electronic files of its neighboring agencies, both within Arizona and the Southwestern states.

Information sharing will extend beyond the limits of law enforcement staff. Electronic tools will be

developed to bring citizens, neighbor-hood associations, and community groups into the data sharing process. Neighborhood-specific crime rates and maps will be commonly available to interested citizens, via the TPD's Internet web site. Citizens will be able to file minor police reports and request information via secure Internet web pages. Police bulletins and other law enforcement related items will be sent to interested parties via email, to a much greater extent than they are now. The police-community partnership will become closer via these electronic means.

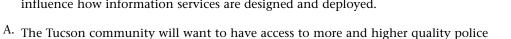


Mobile Tactical Computers in each patrol vehicle will help to achieve the vision of "Secure

ASSUMPTIONS ABOUT THE FUTURE

information.

There are several assumptions that are implicit in this vision statement. The following trends and conditions are expected to be true during the next several years, and will influence how information services are designed and deployed.



- oolice
- B. There will increased public access to law enforcement information, especially through a web-based environment.
- C. There will be an increased public filing of low severity police reports, especially through the use of "web-based" tools.
- D. More restrictive electronic encryption and security standards will be imposed by external agencies, and by the efforts of those wishing to penetrate TPD's computer systems.
- E. The cost of wireless network bandwidth will continue to fall over time, as competing technologies vie for market share.
- F. There will be an increase in use of wireless mobile technology within the department. Its exact form will be defined by the actions of the technology marketplace.
- G. There will be an era of increasing cooperation among TPD and other City departments and first responder agencies. This includes the Tucson Fire Department, the city's Department of Transportation, City Court, and the Pima County Sheriff's Office. All will share information technology resources under a set of controlled, mutually agreed-upon circumstances.
- H. It will be in the best interests of private sector entities (e.g., banks, shopping centers, department stores, et al.) to enter into partnerships with public sector entities in providing access to high capacity wireless data services.
- I. Officers will have increasing access to the City's and the department's information systems from their vehicles.
- J. Because of the rapidity and uncertainty of change, systems must be modularly designed, with "plug and play" components.
- K. Information interchanges among information systems will be delivered via self-defining (XML) data files. The Uniform Justice XML standard will become the dominant form through which law enforcement data will be exchanged.
- L. Information will be collected and widely disseminated very fast. The police reporting cycle time will be reduced from days to minutes.
- M. Electronic law enforcement information sharing will become more multi-jurisdictional in nature. The agencies in each information-sharing consortium will be able to track criminal activities across jurisdictional boundaries more rapidly. The reporting cycle time within these agencies will be reduced from weeks, to just a few hours or less.
- N. Local law enforcement agencies will command an ever-increasing presence in federal law enforcement efforts, especially with respect to sharing homeland security information.
- O. System enhancement ideas will increasingly come from officers in the field, as they become more proficient with their new technology tools.

P. There will be increasing importance placed on the role of sworn staff who act as liaisons between those in the field, and those in the technology staff. These officers also will become more important serving as catalysts for change.



- Q. There will be a greater use of geo-positioning information to locate and deploy first responder resources in the field. Coordination of TPD resources with those of other agencies, particularly the Tucson Fire Department, will become more routine and easy to accomplish with currently available, off-the-shelf technology.
- R. Information will be collected, indexed, and stored as part of an all digital infrastructure. In addition to the collection of electronic incident reports, digital copies of voice, streaming video, static picture, sound, fingerprint files, and more will be made, filed, and retrieved.
- S. The older workhorse systems (Computer Aided Dispatch (CAD) and Record Management System (RMS)) have a large installed base of customers. Therefore the software vendor's support for these two systems will continue at current levels for another five years.
- T. Computer network technology will become cheaper to buy and will be able to perform more functions. It will also require a more highly trained and costly technology staff to design, configure, tune, and maintain the network.
- U. Tucson will continue to grow rapidly. In order to meet the expanding volume of required city services, TPD will add 400 more police officers within five years.
- V. National crime reporting standards will change, with the newer National Incident-Based Reporting System (NIBRS) replacing the older Uniform Crime Reporting (UCR) methodology.

THE MISSION

Information technology can be used in many ways to fulfill TPD's mission, by improving police services. This technology works best when it is well-focused. For this plan, the department's IT resources primarily will be focused on two of the six department's strategic directives. During the next several years, the Information Services Division's mission will be to focus on (1) supporting officers in reducing, solving, and preventing crime, and (2) improving the quality of life for the Tucson community.

THE STATUS OF CURRENT TECHNOLOGY

The department's technology platform provides a good foundation for the future.

Hardware and Network

The computer infrastructure is founded upon Novell and Microsoft-based computer networks that are backed up by a powerful set of interconnected Hewlett Packard minicomputers. The TPD network sits securely behind its own inner firewall. The network sends electronic traffic via the City IT Department's fiber optic network, which in turn has its own outer firewall. TPD's network is also connected to those of other major law enforcement agencies, including the Phoenix City Police Department, San Diego's Automated Regional Justice Information System consortium of 50 agencies, the Arizona Department of Public Safety, and the Department of Homeland Security Bureau of Customs and Border Protection. The TPD exchanges law enforcement information on a regional basis, and can track the activities of mobile criminals across many different jurisdictional entities. The computer hardware is on a regular maintenance and replacement cycle, and has adequate capacity to handle the present workload. It is modular in design, and can be upgraded and reconfigured with minimal disruption to police operations.

Software

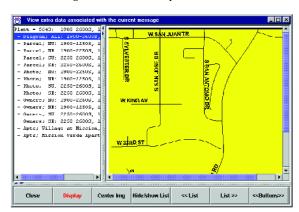
The software portfolio is based on two workhorse systems. The Records Management System, or RMS, is over twelve years old but is very reliable. The Computer Aided Dispatch (CAD) system is of the same vintage. Both systems have been enhanced over the years to incorporate changes in police process, legal mandates, and reporting requirements. RMS is the principal repository for law enforcement data, and is the source of many statistical reports. CAD is used to enter information on calls for service, to deploy officers to these calls, and to balance the workload across the city. CAD data is electronically transferred to RMS, but until recently the details of most police reports were manually entered into this system. That is now changing, as almost all of the manual process is being phased out.

The TPD is completing the deployment of an Automated Field Reporting System (AFRS). It allows officers to complete and electronically file police reports very rapidly by using computers in their patrol cars. This eliminates many manual steps and possible errors in the report creation process. AFRS electronically feeds validated and approved data to RMS every five minutes. This process greatly improves data quality and shortens the reporting cycle time from its former 10 to 15 days. Once the data are safely in RMS they become available to the CopLink investigative system. This artificial intelligence tool enables criminal investigators to quickly organize law enforcement records into meaningful patterns of criminal activities.

Recent Enhancements

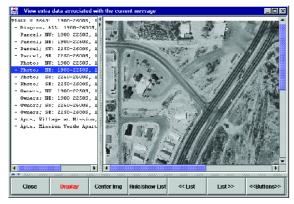
As these systems were being integrated, other electronic tools were put in place to assist patrol officers. The CAD system has been enhanced to provide city maps, block-by-block aerial photos, utility line maps, property ownership lists, and mug shot photos on every mobile computer in the fleet. The Wireless Local Area Network's coverage area is being expanded from five to 30 sites, including fire stations, parks, and the county jail. This expansion allows officers to file their reports electronically and to send and receive email from their cars, with fewer disruptions to normal patrol activities. In some instances, people also can be positively identified in the field without having to transport suspects back to the station.

These examples illustrate the tactical results of having built a flexible but interconnected set of strategic information systems.



Officers now have access to maps and aerial photos in their vehicles at the touch of a button.





CRITICAL SUCCESS FACTORS

To be successful in supporting officers in reducing, solving and preventing crime and in improving the quality of life for the Tucson community, we must do the following.

- A. Integrate information technology into law enforcement processes, making small innovations and major improvements that best leverage the work of the sworn officers.
- B. Simplify the process of gathering, distributing, analyzing, and disseminating police information, in order to prevent crimes, solve those that do occur, and catch and help convict those who commit crimes.
- C. Retain the strong cooperation between sworn officers and civilian technologists, in order to deliver a continuing stream of effective law enforcement products and services.
- D. Retain the services of a skilled and well-trained team of IT professionals, to support the department's IT needs.
- E. Train the TPD staff in the best use of police IT tools.
- F. Improve the way in which IT serves are delivered.
- G. Develop a channel for the collection of technology ideas from commissioned personnel, using their insights to develop and implement a continuing series of process and technology innovations.
- H. Serve as a source of "best practices" ideas in delivering police services.
- I. Complete existing technology projects already underway from the previous Technology Plan.

CHALLENGES

There are several challenging issues facing TPD's IT group, the Information Services Division (ISD).

Challenge 1

Provide staffing to support the technology needs of an expanding city and its Police Department.

Solution 1.1: Provide redundant support to WAN Administrator and Senior Systems Analyst over seeing mission critical systems.

Challenge 2

Maintain an appropriate service level ratio.

Solution 2.1: Create efficiencies and establish standards to provide improved services to employees.

Challenge 3

Establish a training budget.

Solution 3.1: Provide regular training for IT personnel.

Solution 3.2: Create a list of needs.

Challenge 4

Retain sworn staff in Data Services.

Solution 4.1: Ensure all projects are done with input from appropriate users.

Solution 4.2: Create AFRS user groups.

Challenge 5

Prepare to make changes to the national crime-reporting standard.

SOLUTION 5.1: Ensure sufficient staffing to reprogram RMS to re-classify existing crimes and ensure the database will accommodate the new crime reporting standards.



CURRENT PROJECTS

The vision described above will govern the Tucson Police Department's future use of information technology. Since systems improvements build upon one another, the foundation of the last IT strategic plan must be completed. Here is a summary of the work in progress.





Finish the Implementation of the Automated Field Reporting System

This is a large (about \$7.9 million) multiyear project, and will be fully deployed in the department this fiscal year. All significant problems have been overcome or worked around, but the resolution of loose ends will continue to consume most of the department's technology labor resources for at least another year.

Complete the Wireless LAN Expansion

The AFRS system turns a patrol car into the equivalent of an officer's desktop or office. In addition to the features in the vendor's "off the shelf" system, DS staff have augmented the baseline system with the new features described above (e.g., mug shots, neighborhood maps, block-by-block aerial photos, etc.). All of this is designed to allow officers to stay in the field longer.

These features can be activated within a patrol car from selected areas in the city. But to best utilize the system, vehicles need to have access to a high-speed data network over a wide geographical area. Between 20 and 25 sites are anticipated. All of them will be situated at City buildings that are connected to the fiber optic network. The first installations will include TPD equipment being placed at TFD stations. The work is straightforward, and will consume scarce project management resources.

Continue To Expand TPD's Cooperative Networking Relationships with Other Agencies

A more complete picture of criminal and terrorist activities can be determined by sharing information across jurisdictional boundaries. To aid in this discovery process criminal information-sharing network is being established at a regional level. It addresses the department's interest in cross-jurisdictional criminal activity (migrating criminals) and homeland security.

Continue To Harden the TPD Data Center and Computer Network

This involves several efforts. Parts can no longer be obtained for data center's Uninterruptable Power Supply (UPS) control boards. To prevent potential system disruptions, the UPS will be replaced. Plans are in place for redundant server computers to be purchased and setup in an automatic failover mode. This completes one part of ISD's disaster avoidance plan, since part of the network already is protected with redundant servers.

Plans are also in place to procure an intrusion detection system that will allow the system administrators to detect and neutralize a threat to the computer network much more rapidly than can be done now. No network can be made completely safe, and the TPD network is very difficult to break into from an external source.

The main threat is likely to come from an employee's workstation that is located within the departments firewall. Modern intrusion detection systems can be configured to detect unusual or improper patterns of workstation activity, raise the alarm, and take preventive action if needed. The main exposure here is the threat of an intrusion taking place before the system's procurement cycle can be completed.

The last part of this project is a system upgrade to conform to higher data encryption standards. The Department of Justice has released new, tougher security standards for law enforcement electronic transactions. The TPD will have to have to encrypt all of the transactions that travel along the entire City fiber optic network. The TPD network itself is physically secure and many of its systems have their own transactions encrypted. But with the AFRS system's implementation, the TPD must re-certify its network security. Consequently, certain encryption equipment must be purchased, installed, configured, and maintained between headquarters and each remote TPD location.

Implement an Automated Vehicle Locator System

The goal here is more than to electronically place police vehicles accurately on an electronic map of Tucson. It also is to be able to locate police officers and fire apparatus on the same map, so that dispatchers and incident commanders can safely deploy their staff in a timely manner. No such capability yet exists at the police department.

Share Mobile Network Resources Between The TPD and Other Agencies

ISD policy is to work with other agencies in the metropolitan area to share technology resources whenever possible. Network infrastructure technology will be shared among TPD, the Tucson Fire Department, and the City Transportation Department. Wherever the technology can be safely and securely leveraged to the advantage of more than one department, new network connections will be made.

Sharing Information Resources with Other Agencies

In addition to investigative information, TPD and the other City and County agencies need access to one another's electronic information. A project is underway with City Court to automate the collection, validation, and transmission of traffic citations. Similar ones will follow. Police reports and other information will be electronically shared with the County Prosecutor's office in the immediate future.

There will be an administrative overhead that will come with each shared information agreement. Policies and procedures must be created and periodically updated when necessary. Technology changes at one organization will increasingly affect another. The entities involved must be prepared to develop and preserve their lines of communication in ways that haven't been anticipated previously.

Expand Public's Access through the TPD Web Page

Citizens now can access information about the department, neighborhood crime statistics, and file minor police reports at the department's web page. The page is linked to the Internet through the City's web page. As more people use it, the demand will grow to add more functionality. There will need to be a balance between public access and the security of the internal police systems. Right now the web page is outside of both the City and the TPD firewalls. Some thought and effort need to be given toward how best to use Internet web pages to serve the needs of the Tucson community.

GOALS AND OBJECTIVES

Goal 1: FINISH IMPLEMENTING THE VISION OF THE MOST RECENT IT PLAN.

Objective 1A: Make organizational changes that take advantage of the investigative technology that TPD already possesses.

Strategy 1A.1: Form a permanent relationship between sworn officers and civilian technologists. Performance Measures

- Sworn staff are permanently assigned to the Information Services Division.
- A career path within ISD is established for sworn staff to rotate into and out of the Division.

Objective 1B: Restructure job duties to better use and take advantage of existing technology.

Strategy 1B.1.: Integrate more technology into the investigative process.

Performance Measures

- An ongoing training program for Detectives and Crime Analysts is established, so that they learn how to use CopLink and other investiga tive systems proficiently.
- Class attendee's performance is measured before and after the training classes for effectiveness.
- The job description of one of the sworn staff (now on TDY to ISD) is changed to include training and testing activities.



Objective 1C: Complete the systems implementations that already are underway.

Strategy 1C.1.: Complete the Automated Vehicle Locator (AVL) system.

Strategy 1C.2.: Complete the Automated Field Reporting System (AFRS).

Strategy 1C.3.: Encrypt all TPD transactions throughout its electronic network.

Strategy 1C.4.: Implement an intrusion detection system.

Strategy 1C.5.: Complete data center hardening activities.

Strategy 1C.6.: Use Coplink to create bias-based policing tracking statistical software with consideration of integration with the Early Intervention Program software system.

Strategy 1C.7.: Use Coplink to create a management oversize tool.

Performance Measures

- Both police vehicles and fire apparatus can be seen on TPD's CAD system.
- Police reports can be created in patrol cars.
- Reports can be forwarded from officers to field supervisors via a wireless data network
- Reports can be received and approved by supervisors, either from their patrol cars or from their desk workstations.
- Approved reports can be forwarded automatically forwarded to the Records Section for editing.
- The indexed data from edited records can automatically be sent to the RMS system.
- AFRS data automatically populates the RMS databases.
- Reports from other agencies can be scanned into the IKON document imaging system, and be indexed for electronic retrieval.
- Network encryption is implemented along all network paths, either via hardware, software, or a combination of the two.
- Intrusion detection hardware and/or software is implemented within TPD's network firewall.
- Automated intruder alarms are programmed and activated.



- Intrusion detection reports are published and acted upon.
- Unusual network activity is investigated and resolved.
- Potential systems disruptions are minimized, due to the following three changes:
 - -The existing Uninterruptible Power Supply is replaced with a new unit for which spare parts can be obtained.
 - -The data center's temperature fluctuations are minimized through better HVAC environmental controls.
 - -The data center is reconfigured by setting up more routers that are redundant and fault- tolerant, including automatic failover devices.



Goal 2: HELP OFFICERS TO FIGHT CRIME BY GIVING THEM NEWER AND BETTER ELECTRONIC TOOLS TO DO SO.

Objective 2A: Continue to enhance the law enforcement information systems in the department's portfolio.

- Strategy 2A.1.: Continue to enhance the AFRS functionality.
- Strategy 2A.2.: Continue to enhance the TPD-developed CAD system's graphical user interface screen.
- Strategy 2A.3.: Extend the high speed wireless data network.
- Strategy 2A.4.: Establish a common digital platform for all TPD information.
- Strategy 2A.5.: Support the move to processing crime scenes digitally.
- Strategy 2A.6.:

Performance Measures

- AFRS configuration table changes are made, in response to suggestions from officers in the field.
- The list of suggested CAD improvements that have been received from the officers in the field are implemented.
- More TPD Wireless LAN access points, or their equivalent have been added, throughout the Tucson metropolitan area.
- The Identification Section can process all of its information in a digital format, starting with the ability to process crime scene pictures and fingerprints.

Objective 2B: Aggressively discover, pursue, and obtain Homeland Security grants to fund information technology innovations.

Strategy 2B.1.: Assign a staff member solely for grant writing purposes. Performance Measures

- Staff member assigned to grant writing duties.
- Homeland Security grant applications have been written, submitted, and funded by DHS.

Objective 2C: Become more active and effective in detecting highly mobile people who come to Tucson to pursue criminal activities.

Strategy 2C.1.: Automatically share electronic investigative leads with more agencies than TPD works with now, or with whom we seldom work now so this information can be used to predict the travel and activities of criminals.

Performance Measures

- Low speed connections to other agencies are replaced with VPN connections.
- A data sharing interface is implemented with the DHS Bureau of Customs and Border
 Protection.
- The interfaces can update information every five minutes.
- The TPD's investigative systems are used to track, apprehend, and convict criminals who practice their trade across jurisdictional boundaries

Objective 2D: Form ever-increasing strategic information sharing alliances with other public service agencies.

Strategy 2D.1.: Exchange more types of information with other criminal justice agencies, consistent with Constitutional limits.

Strategy 2D.2.: Establish a mobile traffic citation system with the City Courts. Performance Measures

- Memos of understanding are signed with more criminal justice agencies.
- Data sharing interfaces are implemented.
- Traffic citation information is received electronically from the City Court's computer network.
- RMS is automatically populated with electronic traffic citation data.

Objective 2E: Take advantage of the existing and newly developing City technology infrastructure.

Strategy 2E.1.: Work cooperatively with other City departments and entities to enhance the technology infrastructure.

Performance Measures

- Encrypted TPD Wireless LAN access points are set up on traffic lights at major intersections.
- Encrypted TPD Wireless LAN access points are set up at more fire stations.
- Encrypted TPD Wireless LAN access points are set up at other locations, perhaps at schools if permission can be obtained.
- High bandwidth wireless equipment is obtained that operates on the newly available public safety frequencies.

Goal 3: HELP TO IMPROVE THE TUCSON COMMUNITY'S QUALITY OF LIFE.

Objective 3A: Continue working with TFD to share technology.

Strategy 3A.1.: Add police Wireless LAN sites to fire stations.

Strategy 3A.2.: Interconnect TPD and TFD CAD systems with AVL extensions.

Performance Measures

- Police wireless LAN access points installed at fire stations.
- Both TPD and TFD are able to use these access points.
- Police and fire dispatchers can view each other's vehicles and apparatus on their own CAD system's computer map displays.

Objective 3B: Work with citizens in the community to design and implement "web-based" police information services.

Strategy 3B.1.: Create the infrastructure necessary to receive more information from the public.

Strategy 3B.2.: Create the infrastructure necessary to send information out to the Tucson community. Performance Measures

- Citizens can file minor police reports via the TPD Internet web page.
- Citizens can get neighborhood-specific crime statistics via that same web page.
- The public can view photos of wanted persons on the TPD web page.



Goal 4: DEVELOP AN IT INFRASTRUCTURE TO DELIVER INNOVATIVE PRODUCTS AND SERVICES TO THE LAW ENFORCEMENT COMMUNITY.

Objective 4A: Establish a Steering Committee to prioritize major IT projects.

Strategy 4A.1.: Create a steering committee, composed of commanders, officers, and civilian employees.

Performance Measures

- Committee meetings occur.
- Major IT projects are placed in a priority order.
- The priority list is published.

Objective 4B: Work with Dept of Defense contractors to become a demonstration and development partner for civilian applications of military technology.

Strategy 4B.1.: Establish a cooperative project with at least one DOD contractor, especially with respect to mobile computing technology

Performance Measures

- A demonstration project is proposed to DOD.
- The proposal is funded.

Objective 4C: Enter into cooperative relationships with private sector entities, to implement streaming mobile video technology.

Strategy 4C.1.: Transmit pictures of building interiors (of banks, stores, shopping center, hotels, or other entities) so that they can be view by approaching police vehicles. Performance Measure

 A system is installed and becomes operational in at least one bank, shopping center, or commercial business.

Objective 4D: Enter into cooperative relationships with volunteers in the private sector to share high bandwidth mobile data networks.

Strategy 4D.1.: Authorized users in police vehicles can access the department's encrypted high-speed data networks from public sector locations.

Performance Measure

• Encrypted TPD traffic is sent and received from at least one Wireless LAN access point that is at a business site.

Goal 5: DEVELOP AN IT INFRASTRUCTURE THAT MEETS THE REQUIREMENTS OF CHANGE.

Objective 5A: Increase the capacity of the computer networks, to handle growing transaction volumes.

Strategy 5A.1.: Improve the computer network by increasing its transaction throughput capacity. Performance Measures

- The network equipment portfolio is modified by starting to replace lower capacity network servers and switches with ones that can process more transactions per minute.
- The network structure is reconfigured to allow more throughputs measured in transactions per minute.

Objective 5B: Comply with changes in the national crime reporting standards.

Strategy 5B.1.: Implement the NIBRS crime reporting standard. Performance Measures

- Changes are made to the RMS databases to store the new NIBRS data elements.
- New reports are created.
- The reporting results are tested and validated.

